

REMARKS

SUMMARY:

The subject application sets forth pending claims 11-23, 29-39 and 45-70, of which claims 11, 30, 45 and 69 are independent claims. Applicants note with appreciation official indication that claims 30-39 and 45-68 are indicated as allowed. Claims 11-16 and 69-70 stand rejected under 35 U.S.C. §102(b) as being unpatentable over WO 95/01556 (the "'556 application"). Claims 14-22 and 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the '556 application. The above prior art rejections are respectfully traversed based on the presently submitted amendments and the following remarks.

CLAIMS 11-23 AND 29:

Claims 11-16 stand rejected under 35 U.S.C. §102(b) and claims 14-22 and 29 stand rejected under 35 U.S.C. §103(a), all as being unpatentable over the '556 application. The '556 application discloses in the abstract a force sensor having a base fixed end 2, a test body 1 extending from the fixed end, and a member 3 extending from the test body. The member 3 provides an input part to which measured forces are applied. The test body 1 is thus disposed between the fixed, reference part 2 and the member 3, and strain in the member 3 is transmitted to the test body 1 to be read by the strain gauges.

Claim 11 is amended herein to set forth an additional claim element, namely "a portion of elastomeric material in which said pair of first strain sensors and the flexible pyramid-shaped body on which said pair of first strain sensors are disposed are embedded". The provision of the sensor assembly of claim 11 in an elastomeric material enables in part the generation of output signals in response to forces applied by contact to the various faces of the flexible pyramid-shaped body on which the pair of first strain sensors are disposed.

The function and structure set forth with regard to the sensor assembly of claim 11 differ substantially and patentably from the force sensor technology as described in the English language abstract of the '556 application. First, the '556 application does

not disclose or suggest an elastomeric material in which a pair of strain sensors and flexible pyramid-shaped body comprising a sensor assembly are embedded. Since this element is not disclosed in the '556 application, such reference cannot by law serve as an anticipatory reference to present claim 11.

Second, the sensor assembly of claim 11 is configured such that strain is measured (via the respective generated output signals) based on forces applied by contact to the strain sensors disposed on the first opposed faces of the flexible pyramid-shaped body. As such, the forces are applied directly to the face(s) of the pyramid as transmitted thereto by the elastomeric material in which the sensor assembly is embedded. The force sensor of the '556 application, on the other hand, measures forces that are applied to the separate member portion 3. The sensor assembly of claim 11 does not require a separate member portion for receiving the application of forces to be measured, which is then transmitted to a test body. Rather, forces are applied directly to the claimed assembly because it is embedded in the portion of elastomeric material. Since the '556 application also fails to disclose a sensor assembly that measures strain based on forces applied directly by contact to the strain sensors on the selected faces of a pyramid-shaped body, the '556 application cannot serve as an anticipatory reference to present claim 11.

Applicants also note that the '556 application teaches away from a modification to embed its force sensor assembly in an elastomeric material, as set forth in claim 11. If such a modification were made to the two-way force sensor of the '556 application, access to the member portion 3 to which forces are applied in a plane perpendicular to the axis (A) of the test body would not be possible. Since such a modification would render the invention of the '556 application unsuitable for its intended purpose, there would be no suggestion or motivation to make such a modification. (See MPEP §2143.01 and *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

For at least the reasons presented above, Applicants submit that all features of claim 11 are not disclosed in the '556 application. Therefore, claim 11 should be allowed over the cited art and acknowledgement of the same is earnestly solicited. Furthermore, since present claims 12-23 and 29 variously depend from otherwise

allowable claim 11 and further limit such independent claim, claims 12-23 and 29 should also be allowed.

CLAIMS 69-70:

Claims 69-70 stand rejected under 35 U.S.C. §102(b) as being unpatentable over the '556 application. The '556 application discloses in the abstract a force sensor having a base fixed end 2, a test body 1 extending from the fixed end, and a member 3 extending from the test body. The member 3 provides an input part to which measured forces are applied. The test body 1 is thus disposed between the fixed, reference part 2 and the member 3, and strain in the member 3 is transmitted to the test body 1 to be read by the strain gauges.

Claim 69 sets forth a three-axis sensor assembly that is embedded in an elastomeric material and that measures strain forces on the elastomeric material. The provision of the sensor assembly of claim 69 in an elastomeric material enables in part the generation of output signals in response to strain in the elastomeric material transmitted directly to respective first and second pairs of strain sensors.

The function and structure set forth with regard to the sensor assembly of claim 69 differ substantially and patentably from the force sensor technology as interpreted from the '556 application. First, the '556 application does not disclose or suggest embedding the sensors in an elastomeric material as set forth in claim 69. Numbered page 4 of the June 22, 2004 Office Action states that the recitation that the sensor assembly is embedded in an elastomeric material is not given patentable weight because it is only recited in the preamble of the claims. In the case of claim 69, Applicants submit that embedding the sensor assembly in elastomeric material is a limitation of such claim because the body of the claim refers back to this limitation. In such instances, the claim preamble is "necessary to give life, meaning, and vitality" to claim 69. (See MPEP §2111.02 and *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999).). Since the elastomeric material is not disclosed in the '556 application, such reference cannot by law serve as an anticipatory reference to present claim 69.

Second, the sensor assembly of claim 69 is configured such that strain forces are measured based on strain in the elastomeric material transmitted directly to first and second respective pairs of strain sensors. The force sensor of the '556 application, on the other hand, measures forces that are applied to the separate member portion 3. The sensor assembly of claim 69 does not require a separate member portion for receiving the application of forces to be measured, which is then transmitted to a test body. Rather, forces are applied directly to the first and second pairs of strain sensors because they are embedded in the elastomeric material. Since the '556 application also fails to disclose a sensor assembly that measures strain in an elastomeric material as transmitted directly to respective pairs of strain sensors, the '556 application cannot serve as an anticipatory reference to present claim 69.

Applicants also note that the '556 application teaches away from a modification to embed its force sensor assembly in an elastomeric material, as set forth in claim 69. If such a modification were made to the two-way force sensor of the '556 application, access to the member portion 3 to which forces are applied in a plane perpendicular to the axis (A) of the test body would not be possible. Since such a modification would render the invention of the '556 application unsuitable for its intended purpose, there would be no suggestion or motivation to make such a modification. (See MPEP §2143.01 and *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

For at least the reasons presented above, Applicants submit that all features of claim 69 are not disclosed in the '556 application. Therefore, claim 69 should be allowed over the cited art and acknowledgement of the same is earnestly solicited. Furthermore, since claim 70 depends from otherwise allowable claim 69 and further limits such independent claim, claim 70 should also be allowed.

CONCLUSION:

In light of the foregoing amendments and for at last the reasons set forth above, Applicant respectfully submits that the present application, including claims 11-23, 29-39 and 45-70, is in complete condition for issuance of a formal Notice of Allowance,

and action to such effect is earnestly solicited. The Examiner is invited to telephone the undersigned at his convenience should only minor issues remain after consideration of this response in order to permit early resolution of same.

Respectfully submitted,

DORITY & MANNING,
ATTORNEYS AT LAW, P.A.

Date: September 22, 2004

A handwritten signature in cursive script, appearing to read "Tim F. Williams", written over a horizontal line.

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